What is claimed is:

1.   A method for moving a carriage assembly from an initial
position to a target position relative to a storage medium having
a center and a circumference and rotating relative to said
carriage assembly at a circumferential velocity about said
center, comprising the steps of:

   determining a first radial distance between said initial
   position of said carriage assembly and said center of said
   storage medium;

   determining a second radial distance between said target
   position of said carriage assembly and said center of said
   storage medium;

   determining a circumferential distance between said initial
   position of said carriage assembly and said target position
   of said carriage assembly taken parallel to said
   circumference of said storage medium;

   determining an initial circumferential velocity of said
   storage medium about said center of said storage medium;

   calculating a velocity trajectory relative to said first
   radial distance, said second radial distance, said

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circumferential distance, and said initial circumferential

velocity such that, if said carriage assembly is moved from

said initial position to said target position with said

velocity trajectory, said carriage assembly will arrive

5   radially and circumferentially at said target position at

substantially the same time; and

moving said carriage assembly from said initial position to

said target position substantially at said velocity

10   trajectory.

2.   A method as defined in claim 1, further comprising the steps

of:

15   determining a target circumferential velocity of said

storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said

initial circumferential velocity to said target

20   circumferential velocity;

wherein said velocity trajectory is further relative to said

desired circumferential velocity; and

25   wherein said carriage assembly will arrive radially and

circumferentially at said target position at substantially

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the same time if moved from said initial position to said target position substantially with said velocity trajectory, and if said initial circumferential velocity of said storage medium is changed to said target circumferential velocity.

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3. A method as defined in claim 2, wherein said storage medium achieves said target circumferential velocity before said carriage assembly arrives at said target position.

10   4. A method as defined in claim 2, wherein said storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

15   5. A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference and rotating relative to said carriage assembly at a circumferential velocity about said center, comprising the steps of:

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moving said carriage assembly from said initial position radially toward said target position at a first velocity trajectory;

25   determining an intermediate position of said carriage assembly relative to said storage medium;

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determining a first radial distance between said intermediate position of said carriage assembly and said center of said storage medium;

5 determining a second radial distance between said target position of said carriage assembly and said center of said storage medium;

determining a circumferential distance between said
10 intermediate position of said carriage assembly and said target position of said carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of said
15 storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said first radial distance, said second radial distance, said circumferential distance, and said initial circumferential
20 velocity such that, if said carriage assembly is moved from said intermediate position to said target position with said velocity trajectory, said carriage assembly will arrive radially and circumferentially at said target position at substantially the same time; and

25 moving said carriage assembly from said intermediate

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position to said target position substantially at said
velocity trajectory.

6.   A method as defined in claim 5, further comprising the steps
of:

determining a target circumferential velocity of said
storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said
initial circumferential velocity to said target
circumferential velocity;

wherein said velocity trajectory is further relative to said
desired circumferential velocity; and

wherein said carriage assembly will arrive radially and
circumferentially at said target position at substantially
the same time if moved from said intermediate position to
said target position substantially with said velocity
trajectory, and if said initial circumferential velocity of
said storage medium is changed to said target
circumferential velocity.

7.   A method as defined in claim 6, wherein said storage medium
achieves said target circumferential velocity before said

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carriage assembly arrives at said target position.

8.   A method as defined in claim 6, wherein said storage medium achieves said target circumferential velocity at substantially the same time as said carriage assembly arrives at said target position.

9.   A method for moving a carriage assembly from an initial position to a target position relative to a storage medium having a center and a circumference and rotating relative to said carriage assembly at a circumferential velocity about said center, comprising the steps of:

determining a radial distance between said initial position of said carriage assembly and said target position of said carriage assembly;

determining a circumferential distance between said initial position of said carriage assembly and said target position of said carriage assembly taken parallel to said circumference of said storage medium;

determining an initial circumferential velocity of said storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said radial

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distance, said circumferential distance, and said initial

circumferential velocity such that, if said carriage

assembly is moved from said initial position to said target

position with said velocity trajectory, said carriage

5   assembly will arrive radially and circumferentially at said

target position at substantially the same time; and

moving said carriage assembly from said initial position to

said target position substantially at said velocity

10   trajectory.

10. A method as defined in claim 9, further comprising the steps

of:

15   determining a target circumferential velocity of said

storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said

initial circumferential velocity to said target

20   circumferential velocity;

wherein said velocity trajectory is further relative to said

desired circumferential velocity; and

25   wherein said carriage assembly will arrive radially and

circumferentially at said target position at substantially

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the same time if moved from said initial position to said

target position substantially with said velocity trajectory,

and if said initial circumferential velocity of said storage

medium is changed to said target circumferential velocity.

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11.   A method as defined in claim 10, wherein said storage medium

achieves said target circumferential velocity before said

carriage assembly arrives at said target position.

10   12.   A method as defined in claim 10, wherein said storage medium

achieves said target circumferential velocity at substantially

the same time as said carriage assembly arrives at said target

position.

15   13.   A method for moving a carriage assembly from an initial

position to a target position relative to a storage medium having

a center and a circumference and rotating relative to said

carriage assembly at a circumferential velocity about said

center, comprising the steps of:

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moving said carriage assembly from said initial position

radially toward said target position at a first velocity

trajectory;

25   determining an intermediate position of said carriage

assembly relative to said storage medium;

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determining a radial distance between said intermediate
position of said carriage assembly and said target position
of said carriage assembly;

5   determining a circumferential distance between said
intermediate position of said carriage assembly and said
target position of said carriage assembly taken parallel to
said circumference of said storage medium;

10   determining an initial circumferential velocity of said
storage medium about said center of said storage medium;

calculating a velocity trajectory relative to said radial
distance, said circumferential distance, and said initial
15   circumferential velocity such that, if said carriage
assembly is moved from said intermediate position to said
target position with said velocity trajectory, said carriage
assembly will arrive radially and circumferentially at said
target position at substantially the same time; and

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moving said carriage assembly from said intermediate
position to said target position substantially at said
velocity trajectory.

25   14. A method as defined in claim 13, further comprising the
steps of:

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determining a target circumferential velocity of said

storage medium about said center of said storage medium; and

applying a force to said storage medium to change from said

5   initial circumferential velocity to said target

circumferential velocity;

wherein said velocity trajectory is further relative to said

desired circumferential velocity; and

10

wherein said carriage assembly will arrive radially and

circumferentially at said target position at substantially

the same time if moved from said intermediate position to

said target position substantially with said velocity

15   trajectory, and if said initial circumferential velocity of

said storage medium is changed to said target

circumferential velocity.

15. A method as defined in claim 14, wherein said storage medium

20   achieves said target circumferential velocity before said

carriage assembly arrives at said target position.

16. A method as defined in claim 14, wherein said storage medium

achieves said target circumferential velocity at substantially

25   the same time as said carriage assembly arrives at said target

position.

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